

THAT WHICH IS CLAIMED:

1. A fiber optic ribbon comprising:

a plurality of optical fibers, at least one of the plurality of optical fibers having a core, a cladding, and a coating system;

a joining material, the joining material connecting the plurality of optical fibers, thereby forming a planar structure.

2. The fiber optic ribbon of claim 1, wherein the ribbon has a maximum delta attenuation of about 0.050 dB/km or less for a ribbon optical performance test at a reference wavelength of 1550 nm.

3. The fiber optic ribbon of claim 1, wherein the ribbon has a maximum delta attenuation of about 0.400 dB/km or less for a ribbon optical performance test at a reference wavelength of 850 nm.

4. The fiber optic ribbon of claim 1, wherein the plurality of optical fibers further include an ink layer.

5. The fiber optic ribbon of claim 1, the joining material being a flame-retardant material.

6. The fiber optic ribbon of claim 1, the at least one of the plurality of optical fibers having a further layer applied to the coating system selected from the group of a release agent, an adhesion promoter, a friction agent, and a anti-static agent.

7. The fiber optic ribbon of claim 1, the at least one of the plurality of optical fibers being selected from the group consisting of a multi-mode optical fiber and a single-mode optical fiber.

8. The fiber optic ribbon of claim 1, the ribbon being a portion of a ribbon stack.

9. The fiber optic ribbon of claim 8, the ribbon stack being at least partially disposed within a tube.

10. The fiber optic ribbon of claim 1, the ribbon being a portion of a dry core.

11. The fiber optic ribbon of claim 10, the ribbon being a portion of a dry core that includes a dry insert.

12. The fiber optic ribbon of claim 1, the ribbon being a portion of a cable.

13. The fiber optic ribbon of claim 12, the cable being flame-retardant.

14. The fiber optic ribbon of claim 1, the ribbon having a sheath thereover.

15. The fiber optic ribbon of claim 1, wherein the ribbon has a maximum delta attenuation of about 0.005 dB/km or less during a ribbon temperature performance test at a reference wavelength of 1550 nm.

16. The fiber optic ribbon of claim 1, the ribbon being a subunit in a larger ribbon assembly.

17. The fiber optic ribbon of claim 1, the ribbon having a preferential tear portion.

18. The fiber optic ribbon of claim 1, the at least one of the plurality of optical fibers being a 50 micron multi-mode optical fiber.

5 19. The fiber optic ribbon of claim 1, the coating system having an inner coating and an outer coating, wherein the inner coating has a Young's modulus of about 1 MPa or less, and the outer coating has a Young's modulus of at least about 1400 MPa or greater.

10 20. The fiber optic ribbon of claim 1, the coating system having an inner coating and an outer coating, wherein the inner coating is the cured reaction product of an inner curable composition comprising an oligomer, a hydroxy-functional monomer in a  
15 concentration of 0.1 to 25%, by weight, and a co-monomer.

21. The fiber optic ribbon of claim 1, the coating system having an inner coating and an outer coating, wherein the outer coating is the cured reaction product of an outer curable composition  
20 comprising an oligomer in a concentration of less than about 15%, by weight, and at least one monomer.

22. A tube assembly comprising:

25 at least one optical waveguide, the at least one optical waveguide having a core, a cladding, and a coating system; and

a tube, the at least one optical waveguide being disposed within the tube.

23. The tube assembly of claim 22, the at least one optical  
30 waveguide further includes an ink layer.

24. The tube assembly of claim 22, the at least one optical waveguide includes a further layer.

25. The tube assembly of claim 22, the at least one optical waveguide being a portion of a ribbon.

26. The tube assembly of claim 22, wherein the ribbon has a maximum delta attenuation of about 0.050 dB/km or less for a ribbon optical performance test at a reference wavelength of 1550 nm.

27. The tube assembly of claim 22, wherein the ribbon has a maximum delta attenuation of about 0.400 dB/km or less for a ribbon optical performance test at a reference wavelength of 850 nm.

28. The tube assembly of claim 22, the at least one optical waveguide having a buffer layer.

29. The tube assembly of claim 28, further comprising an interfacial layer between the at least one optical waveguide and the buffer layer.

30. The tube assembly of claim 22, the tube being formed from a bimodal material.

31. The tube assembly of claim 22, the tube assembly being a dry tube assembly.

32. The tube assembly of claim 22, further comprising a dry insert within the tube.

33. The tube assembly of claim 22, the tube assembly housing a plurality of ribbons, wherein the tube assembly has a ribbon packing density of about 0.15 or greater.

34. The tube assembly of claim 22, the tube assembly forming a portion of a cable.

35. The tube assembly of claim 22, the coating system having an inner coating and an outer coating, wherein the inner coating has a Young's modulus of about 1 MPa or less, and the outer coating has a Young's modulus of at least about 1400 MPa or greater.

36. The tube assembly of claim 22, the coating system having an inner coating and an outer coating, wherein the inner coating is the cured reaction product of an inner curable composition comprising an oligomer, a hydroxy-functional monomer in a concentration of 0.1 to 25%, by weight, and a co-monomer.

37. The tube assembly of claim 22, the coating system having an inner coating and an outer coating, wherein the outer coating is the cured reaction product of an outer curable composition comprising an oligomer in a concentration of less than about 15%, by weight, and at least one monomer.

38. The tube assembly of claim 22, the tube assembly being a portion of a cable having at least one strength member.

39. A fiber optic cable comprising:

at least one optical waveguide, the at least one optical waveguide having a core, a cladding, and a coating system; and a jacket, the at least one optical waveguide being disposed within the jacket.

40. The fiber optic cable of claim 39, the at least one optical waveguide being a portion of a ribbon, wherein the ribbon has a maximum delta attenuation of about 0.050 dB/km or less for a ribbon optical performance test at a reference wavelength of 1550 nm.

41. The fiber optic cable of claim 39, the at least one optical waveguide being a portion of a ribbon, wherein the ribbon has a maximum delta attenuation of about 0.400 dB/km or less for a ribbon optical performance test at a reference wavelength of 850 nm.

42. The fiber optic cable of claim 39, the cable being a dry cable design.

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43. The fiber optic cable of claim 42, the dry cable design having a dry insert.

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44. The fiber optic cable of claim 39, the at least one optical waveguide being a 50 micron multi-mode optical fiber.

45. The fiber optic cable of claim 39, the at least one optical waveguide being buffered.

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46. The fiber optic cable of claim 39, the cable being flame-retardant.

47. The fiber optic cable of claim 39, the cable being a figure eight design.

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48. The fiber optic cable of claim 39, the coating system having an inner coating and an outer coating, wherein the inner coating has a Young's modulus of about 1 MPa or less, and the outer coating has a Young's modulus of at least about 1400 MPa or greater.

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49. The fiber optic cable of claim 39, the coating system having an inner coating and an outer coating, wherein the inner coating is the cured reaction product of an inner curable composition

comprising an oligomer, a hydroxy-functional monomer in a concentration of 0.1 to 25%, by weight, and a co-monomer.

50. The fiber optic cable of claim 39, the coating system having  
5 an inner coating and an outer coating, wherein the outer coating is the cured reaction product of an outer curable composition comprising an oligomer in a concentration of less than about 15%, by weight, and at least one monomer.